**AP Statistics Ch. 21 Practice**

1. A report on unemployment from last year found that 11% of Americans were out of work at some point in the year. A random sample of 1430 Americans was taken and found that 136 were unemployed this year.
2. Does this indicate that Americans are finding more jobs this year?  Use a 5% level of significance.  (assume conditions have been met)
3. Explain what the P-Value means in this context.
4. Construct a 95% confidence interval for the true proportion of Americans that were unemployed.
5. Does the conclusion from the confidence interval confirm or contradict your conclusion to the hypothesis test? Explain.
6. What should the confidence level have been for the interval to match the significance level for the test? Does the interval created match the conclusion now?
7. What level of significance would match the 95% confidence level? What would the conclusion to the hypothesis test be if that level of significance was used?
8. What is Type I error in this context?
9. What is Type II error in this context?
10. Describe what power means in this context.
11. Suppose that a new sample was taken with 621 Americans. A new test is run with the same level of significance (5%). How would the Type I Error, Type II Error, and Power be affected by this change?
12. A large national company is criticized for not allowing females to rise to management level positions. The argument centers on the fact that 45% of the company employees are female, but out of a random sample of 62 management level positions only 21 are female.
13. Test an appropriate hypothesis with a level of significance of 5%. (assume conditions have been met)
14. Explain what the P-Value means in the context of this problem.
15. Would a 95% confidence level be appropriate for this test? Would it give the same conclusion?
16. What confidence level would match the level of significance used?
17. If you had used a level of confidence of 1% what would have been your conclusion?
18. What is a Type I error in this context?
19. What is a Type II error in this context?
20. Describe the Power in the context of the problem.
21. Suppose we increased the sample size to 100 (but keep the same level of significance of 5%). What would happen to Type I Error, Type II, and power?
22. Suppose we change our significance level to 1% (but keep the original sample size). What would happen to the Type I Error, Type II error, and Power?

**AP Statistics Ch. 21 Practice**

1. A report on unemployment from last year found that 11% of Americans were out of work at some point in the year. A random sample of 1430 Americans was taken and found that 136 were unemployed this year.
2. Does this indicate that Americans are finding more jobs this year?  Use a 5% level of significance.  (assume conditions have been met)
3. Explain what the P-Value means in this context.
4. Construct a 95% confidence interval for the true proportion of Americans that were unemployed.
5. Does the conclusion from the confidence interval confirm or contradict your conclusion to the hypothesis test? Explain.
6. What should the confidence level have been for the interval to match the significance level for the test? Does the interval created match the conclusion now?
7. What level of significance would match the 95% confidence level? What would the conclusion to the hypothesis test be if that level of significance was used?
8. What is Type I error in this context?
9. What is Type II error in this context?
10. Describe what power means in this context.
11. Suppose that a new sample was taken with 621 Americans. A new test is run with the same level of significance (5%). How would the Type I Error, Type II Error, and Power be affected by this change?
12. A large national company is criticized for not allowing females to rise to management level positions. The argument centers on the fact that 45% of the company employees are female, but out of a random sample of 62 management level positions only 21 are female.
13. Test an appropriate hypothesis with a level of significance of 5%. (assume conditions have been met)
14. Explain what the P-Value means in the context of this problem.
15. Would a 95% confidence level be appropriate for this test? Would it give the same conclusion?
16. What confidence level would match the level of significance used?
17. If you had used a level of confidence of 1% what would have been your conclusion?
18. What is a Type I error in this context?
19. What is a Type II error in this context?
20. Describe the Power in the context of the problem.
21. Suppose we increased the sample size to 100 (but keep the same level of significance of 5%). What would happen to Type I Error, Type II, and power?
22. Suppose we change our significance level to 1% (but keep the original sample size). What would happen to the Type I Error, Type II error, and Power?